

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Office Action dated June 5, 2002 and the Communication field on November 19, 2002. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Claims 1-2 are currently pending in this application after entry of this amendment. As outlined above, Claims 3 through 34 have been cancelled without prejudice or disclaimer of their subject matter. Claim 1 is being amended, as set forth above and in the attached marked-up presentation of the claim amendments, in order to more particularly define and distinctly claim applicants' invention. Also, the Specification and the drawing Figures 13, 18, and 19 are being amended as previously set forth herein to correct formal errors and to place the application in better form. Entry of the amendments to the Specification and to drawing Figures 13, 18, and 19, are also respectfully requested. It is submitted that no new matter is being submitted through the filing of this response.

Prior Art Rejections

Claims 1 and 3 through 6 were rejected under 35 U.S.C. 102(b) over Japanese Application Publication No. 06-034984 (herein after "Misono"). Claims 1 and 3 were rejected under 35 U.S.C. 102(b) over Japanese Application Publication No. 61-162025 (hereinafter "Obata"). Claim 2 was rejected under 35 U.S.C. 103 (a) over Misono in view of U.S. Patent No. 6,239,855 to Nakahara et.al. (hereinafter "Nakahara"). These rejections are considered collectively and respectfully traversed.

The liquid crystal display device, as now recited in claim 1, comprises a pair of substrates as disposed to spatially oppose each other with a layer of liquid crystal material interposed therebetween and a seal material used for adhesion of one of the substrates to a remaining substrate, said seal material also having a function of encapsulating the liquid crystal material. In particular, more than one projection body is photolithographically formed within said seal material so as to provide a predetermined shape thereof (page 8, line 24 – page 9, line 7), and said projection body is formed on either of said substrates, and said projection body is formed on either of said substrates.

Applicants respectfully contend that none of the cited prior art references teaches or suggests such projection bodies photolithographically formed within said seal material so as to provide a predetermined shape thereof, such as an elongated side longer than another side (the middle two PROs in shadow in Figs. 2-3).

Contrary to the Examiner's assertion, the alleged spacers 9-11 in Misono are disposed only **outside** (but not **within**) the seal material 5 as clearly shown in Fig. 1. In particular, the wall part 9, the buffer part 10, and the pars insularis 11 in Misono were located outside the seal material 5 and made into different shapes due to their specific functions in guiding the crystal material into the space between the substrate.

In Fig. 2, Obata discloses a spherical bead-like spacer 5 formed in a sealing material 6. However, the *non-uniformly dispersed* spherical bead-like or column-shaped spacer 5 is the exact type of prior art the present invention tried to avoid (page 1, lines 16- page 2, line 11) by *photolithographically formed* within said seal material so as to provide a predetermined/ desired shape thereof. Nakahara shares the same deficiency as Obata. The spherical bead-like or column-shaped spacers 15 (e.g., glass beads, glass fiber, plastic beads, or the like; see col. 8, lines 50-57) of Nakahara shown in Fig. 1 are also *non-uniformly dispersed* in the seal material 14 which is the exact type of prior art the present invention tried to avoid.

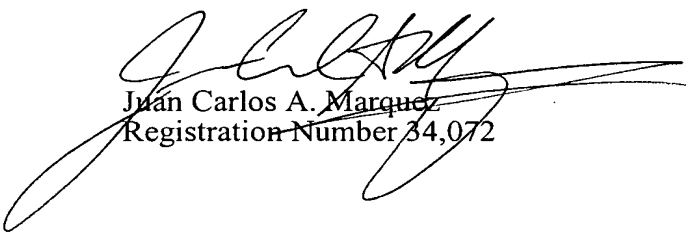
Accordingly, Applicants contend that none of the cited prior art references or their combinations teaches or discloses each and every feature of the present invention as disclosed in claim 1. As such, the present invention as now claimed is distinguishable and thereby allowable over the rejections raised in the Office Action. The withdrawal of the outstanding prior art rejections is in order, and is respectfully solicited.

In view of all the above, clear and distinct differences as discussed exist between the present invention as now claimed and the prior art reference upon which the rejections in the Office Action rely, Applicants respectfully contend that the prior art references cannot anticipate the present invention or render the present invention obvious. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application as amended is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicants' undersigned representative at the address and phone number indicated below.

Respectfully submitted,

Stanley P. Fisher
Registration Number 24,344


Juan Carlos A. Marquez
Registration Number 34,072

REED SMITH LLP
3110 Fairview Park Drive
Suite 1400
Falls Church, Virginia 22042
(703) 641-4200

December 6, 2002

SPF/JCM/JT

MARKED-UP COPY OF THE AMENDMENTS

IN THE SPECIFICATION

Please amend the specification as follows:

Please amend the paragraph bridging pages 3 and 4, from line 24 on page 3 through line 2 on page 4, as follows:

[Fig. 4] Figs. 4A and 4B are [is a] main part arrangement [diagram] diagrams showing another embodiment of the liquid crystal display device in accordance with the instant invention;

Please amend the paragraph on page 4, from lines 15 through 17, as follows:

[Fig. 9 is a] Figs. 9A and 9B are main part plan view [diagram] diagrams showing another embodiment of the liquid crystal display device in accordance with the invention;

Please amend the paragraph on page 5, from lines 5 through 6, as follows:

[Fig. 14 is a] Figs. 14A and 14B are plan view [diagram] diagrams of a liquid crystal display device also embodying the invention;

Please amend the paragraphs on page 5, from lines 10 through 15, as follows:

[Fig. 16 is a] Figs. 16A-16E are process flow [diagram] diagrams showing one embodiment of a method for manufacturing a liquid crystal display device in accordance with this invention;

[Fig. 17 is a] Figs. 17A-17E are process flow [diagram] diagrams showing another embodiment of the liquid crystal display device manufacturing method in accordance with the invention;

Please amend the paragraph bridging pages 7 and 8, from line 19 on page 7 through line 2 on page 8, as follows:

In Fig. 1A, a region that is surrounded by gate signal lines GL extending in an "x" direction and being disposed in parallel with a "y" direction in the drawing and drain signal lines DL extending in the y direction and being laid out in parallel with the x direction is arranged as a pixel region[:]; in this region, a thin-film transistor TFT [as] is driven by a scan signal being

supplied from a gate signal line GL and a pixel electrode PX to which a video image signal is supplied from a drain signal line DL are formed.

Please amend the paragraph bridging pages 8 and 9, from line 24 on page 8 through line 4 on page 9, as follows:

[This] The projection bodies PRO are formed for example on the transparent substrate SUB2 side and are the ones that are fabricated by applying selective etching treatment using photolithography techniques to a resin film which has been uniformly formed on a specified surface of the transparent substrate SUB2 on the liquid crystal LC side by way of example.

Please amend the paragraph bridging pages 13 and 14, from line 25 on page 13 through line 2 on page 14, as follows:

Each [the] projection body PRO thus formed comes to have a role of smoothly guiding toward the display region AR when encapsulating the liquid crystal material LC.

Please amend the paragraph on page 14, from lines 10 through 16, as follows:

[Fig. 9 is a] Figs. 9A and 9B are plan view [diagram] diagrams showing another embodiment, which corresponds to Fig. 8. An arrangement different from that shown in Fig. 8 is that each projection body PRO is disposed radially when looking at from the encapsulation side of liquid crystal material while at the same time being laid out so that the back section side of the projection body PRO is incapable of being viewed.

Please amend the paragraph on page 14, from lines 20 through 24, as follows:

With such an arrangement, in the case of hardening a UV-hardenable material EC used to block the encapsulation hole after having encapsulated the liquid crystal material, UV rays will no longer [be] fall onto liquid crystals even when such UV rays are irradiated from the encapsulation side.

Please amend the paragraph on page 17, from lines 6 through 11, as follows:

This arrangement permits the gate signal line GL to comprise bypass circuitry in addition to its inherent signal line; thus, even upon occurrence of unwanted disconnection or "open-circuiting" at the gate signal line GL, the illustrative embodiment may offer an advantage that such [opencircuit] an open circuit is well protected by the bypass circuitry.

Please amend the paragraph on page 22, from lines 21 through 24, as follows:

The attachment section of the illustrative projection body PRO is a contact portion between alignment films, wherein these are made of the same material so that an inconvenience as to reduction of bonding forces would not occur.

Please amend the paragraph on page 23, from lines 5 through 7, as follows:

An explanation will next be given of one embodiment of a method for manufacturing the liquid crystal display device with the aforesaid arrangement with reference to [Fig. 16] Figs. 16A - 16E below.

Please amend the paragraph on page 24, from lines 4 through 6, as follows:

Another embodiment of the manufacturing method of the liquid crystal display device with the above-noted arrangement will be explained using [Fig. 17] Figs. 17A - 17E.

Please amend the paragraph on page 25, from lines 11 through 16, as follows:

This embodiment shown herein comprises a concave or recess portion 40 on the side of the other substrate opposing a substrate with more than one projection body PRO fixed thereto while letting a top portion of the projection body PRO be fitted into and mated with the recess 40 and illustrating a black matrix BM on one of the substrates.

IN THE CLAIMS

1. A liquid crystal display device comprising a pair of substrates as disposed to spatially oppose each other with a layer of liquid crystal material interposed therebetween and a seal material used for adhesion of one of the substrates to a remaining substrate, said seal material also having a function of encapsulating the liquid crystal material, wherein
more than one projection body is photolithographically formed [disposed] within said seal material [along an extending direction] so as to provide a predetermined shape thereof, and [this] said projection body is formed [at] on either of said [respective] substrates.